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EXAMINER	
SHAPIRO, LEONID	
ART UNIT	**PAPER NUMBER**
2673	7

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/995,766	Applicant(s) SONG, JANG-KUN	
	Examiner Leonid Shapiro	Art Unit 2673	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 May 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *17-33* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *17-25,27-30,32 and 33* is/are rejected.

7)☒ Claim(s) *26 and 31* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

1. Claims 17-19 rejected under 35 U.S.C. 102(e) as being anticipated by Shin et al. (US Patent No: 6,429,842 B1).

As to claim 17, Shin et al. teaches a liquid crystal display (See Fig. 6, items 200, P, T, Col. 3, Lines 3-8), comprising:

a plurality of gate lines extending in a row direction (See Fig. 6, items G1-Gm, Col. 3, Lines 3-11);

a plurality of data lines extending in a column direction (See Fig. 6, items D1-Dn, Col. 3, Lines 3-11);

a plurality of switching elements connected to the gate lines and the data lines (See Fig. 6, items T11-Tmn, Col. 3, Lines 10-13); and

a plurality of pixel electrodes arranged in a matrix and connected to the switching elements (See Fig. 6, items P11-Pmn, Col. 3, Lines 10-13);

wherein, in a row of plurality of pixel electrodes, the plurality of switching elements (or gate of switching elements) connected to the plurality of pixel electrodes are alternatively connected to neighboring gate lines (See Fig. 6, items T11-Tmn,G1-Gm, Col. 3, Lines 21-23).

As to claim 18, Shin et al. teaches a data driver for applying data voltages to the data lines in line inversion (See Figs. 5-6, items T11-Tmn,G1-Gm, Col. 3, Lines 24-32).

As to claim 19, Shin et al. teaches a polarity of each pixel electrode is inverted every frame (equivalent to the field in the reference) (See Col. 1, Line 17-26).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 20, 24, 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shin et al. in view of Park (US Patent No. 6,573,532 B2).

As to claim 20, Shin et al. does not show a plurality of common electrode lines extending in the row direction, each of the plurality of common electrode lines placed between the plurality of gate lines.

Park teaches a plurality of common electrode lines extending in the row direction, each of the plurality of common (in the reference equivalent with storage electrode lines) electrode lines placed between the plurality of gate lines (See Figs. 1, 6, items 26-28, Col. 3, Lines 40-65 and Col. 11, Lines 35-53).

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate teaching of Park into Shin et al. system in order to provide a TFT panel for an LCD that reduces distortion of the voltage applied to a storage electrode line such that crosstalk and flicker problems are minimized (See Col. 1, Lines 53-57 in the Park reference).

As to claim 24, Shin et al. teaches a method for driving a liquid crystal display (See Fig. 6, items 200, P, T, Col. 3, Lines 3-8), including a plurality of gate lines (See Fig. 6, items G1-Gm, Col. 3, Lines 3-11), a plurality of data lines (See Fig. 6, items D1-Dn, Col. 3, Lines 3-11), a plurality of pixel connected to the plurality of gate lines and the plurality of data lines and arranged in a matrix (See Fig. 6, items P11-Pmn, Col. 3, Lines 10-13), method comprising:

applying a first data voltage of a first polarity to the plurality of data lines (See Figs. 6, 7A, items D1-Dn, Col. 3, Lines 33-45);

providing a first scanning signal for odd pixels in a odd row and even pixels in an even row (See Figs. 6, 7A, items P11-P14 , Col. 3, Lines 33-45);

applying a second data voltage of a second polarity opposite to the first polarity to the plurality of data lines (See Figs. 6, 7B, items D1-Dn, Col. 3, Lines 46-51); and

providing a second scanning signal for odd pixels in even row and even pixels in an odd row (See Figs. 6, 7B, items P21-P24 , Col. 3, Lines 46-51).

Shin et al. does not show a plurality of common electrode lines extending in the row direction, each of the plurality of common electrode lines placed between the plurality of gate lines.

Shin et al. does not show a plurality of common electrode lines arranged alternately between the plurality of gate lines.

Park teaches a plurality of common electrode lines extending in the row direction, each of the plurality of common (in the reference equivalent with storage electrode lines) electrode lines placed between the plurality of gate lines (See Figs. 1, 6, items 26-28, Col. 3, Lines 40-65 and Col. 11, Lines 35-53).

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate teaching of Park into Shin et al. system in order to provide a TFT panel for an LCD that reduces distortion of the voltage applied to a storage electrode line such that crosstalk and flicker problems are minimized (See Col. 1, Lines 53-57 in the Park reference).

As to claim 29, Shin et al. teaches a method for driving a liquid crystal display (See Fig. 6, items 200, P, T, Col. 3, Lines 3-8), including a plurality of gate lines (See Fig. 6, items G1-Gm, Col. 3, Lines 3-11), a plurality of data lines (See Fig. 6, items D1-

Dn, Col. 3, Lines 3-11), a plurality of pixel connected to the plurality of gate lines and the plurality of data lines and arranged in a matrix (See Fig. 6, items P11-Pmn, Col. 3, Lines 10-13), method comprising:

applying a first data voltage of a first polarity to the plurality of data lines (See Figs. 6, 7A, items D1-Dn, Col. 3, Lines 33-45);

providing a first scanning signal to the plurality of first pixels in pairs of neighboring rows (See Figs. 6, 7A, items P11-P14 , Col. 3, Lines 33-45);

applying a second data voltage of a second polarity opposite to the first polarity to the plurality of data lines (See Figs. 6, 7B, items D1-Dn, Col. 3, Lines 46-51); and

providing a second scanning to the plurality of first pixels in pairs of neighboring rows (See Figs. 6, 7B, items P21-P24 , Col. 3, Lines 46-51).

Shin et al. does not show a plurality of common electrode lines extending in the row direction, each of the plurality of common electrode lines placed between the plurality of gate lines.

Shin et al. does not show a plurality of common electrode lines arranged alternately between the plurality of gate lines.

Park teaches a plurality of common electrode lines extending in the row direction, each of the plurality of common (in the reference equivalent with storage electrode lines) electrode lines placed between the plurality of gate lines (See Figs. 1, 6, items 26-28, Col. 3, Lines 40-65 and Col. 11, Lines 35-53).

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate teaching of Park into Shin et al. system in order to provide a TFT panel for an LCD that reduces distortion of the voltage applied to a storage electrode line such that crosstalk and flicker problems are minimized (See Col. 1, Lines 53-57 in the Park reference).

3. Claims 21-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shin et al. as applied to claim 19 above, and further in view of Moon et al. (US Patent No. 6,421,039 B1).

Shin et al. does not show a common electrode voltage applied to the plurality of common electrode lines is swung in a predetermined period by a square waveform having period equal or three times longer than period of the data voltages.

Moon et al. teaches the swung common electrode voltage in a predetermined period is a square wave having a period identical or multiple to the image signal (See Fig. 14a-14b, 15a-15b, items Vs, Vg, Vcom, in description See Col. 6, Lines 52-58).

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate teaching of Moon into Shin et al. system in order to provide an LCD that can be driven in AC mode (See Col. 3, Lines 34-36 in the Moon et al. reference).

4. Claims 25, 27-28 and 30, 32-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shin et al. and Park as applied to claim 24, 29 above, and further in view of Moon et al. (US Patent No. 6,421,039 B1).

Shin et al. and Park do not show a common electrode voltage applied to the plurality of common electrode lines is swung in a predetermined period by a square waveform having period equal or three times longer than period of the data voltages.

Moon et al. teaches the swung common electrode voltage in a predetermined period is a square wave having a period identical or multiple to the image signal (See Fig. 14a-14b, 15a-15b, items Vs, Vg, Vcom, in description See Col. 6, Lines 52-58).

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate teaching of Moon into Shin et al. and Park system in order to provide an LCD that can be driven in AC mode (See Col. 3, Lines 34-36 in the Moon et al. reference).

Allowable Subject Matter

5. Claims 26 and 31 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

6. The following is a statement of reasons for the indication of allowable subject matter:

Relative to claims 26 and 31, the major difference between the teaching of the prior art of record (US Patent No. 6,429,842 B1 to Shin et al., US patent No. 6,421,039 B1 to Moon et al. and Us Patent No. 6,573,532 to Park) and the instant invention is that the said prior art **does not teach** a formula for a swing amplitude of the common electrode voltage.

Response to Amendment

7. Applicant's arguments filed 05-25-04 with respect to claim 17-33 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

2. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Telephone inquire

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leonid Shapiro whose telephone number is 703-305-5661. The examiner can normally be reached on 8 a.m. to 5 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala can be reached on 703-305-4938. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Ls 07-27-04

VIJAY SHANKAR
PRIMARY EXAMINER